

REMARKS

Applicants appreciate the Examiner's careful review of this application.

Applicants respectfully solicit reconsideration followed by a Notice of Allowance.

Amended claims 1 and 18 find basis in the specification throughout, including the original claims, as well as page 8, at lines 8-12 and page 10, at lines 1-8.

New claims 24 and 25 find basis in the specification throughout, including Examples 1-6.

Claims 1, 2, 5 and 8-23 find support in the original specification, see, e.g., page 26 (original claim 1 or the Abstract), whereby the rejection under §112 (¶1) may be withdrawn.

Claims 1, 2, 5, 8-12, 17-20 and 23 are novel over Toritani et al. (USP 5,169,903).

Claims 1, 2, 5, 8-12 and 15-22 are novel over Koizumi (USP 6,309,739).

Claims 1, 2, 5, 8-12 and 15-22 define unobvious inventions over PCT WO 97/30117 (Tadokoro) in view of either Koizumi or Toritani et al.

The cited references fail to disclose or suggest the claimed inventions.

As to Toritani '903, it discloses

“a methacrylic resin cast plate which is comprised of 100 parts by weight of [I] polymethyl methacrylate or a methyl methacrylate copolymer containing at least 90% by weight of methyl methacrylate units and, dispersed therein, a graft copolymer [IV] obtained by graft-polymerizing a hard resin component [III] containing at least 90% by weight of methyl methacrylate units onto a crosslinked rubbery copolymer [II] containing at least 45% by weight of butyl acrylate units and having an average particle diameter of 0.1 to 1 μ m, the amount of the graft copolymer [IV] being 2 to 30 parts by weight as the amount of the crosslinked rubbery copolymer”

See, Abstract of Toritani '903. Toritani '903 reference relates to a methacrylic resin cast plate.

On the other hand, the claimed invention relates to a laminated extruded resin sheet, rather than a cast plate.

The desired properties of a resin composition for a cast plate and those of a resin composition for a laminated extruded resin sheet are different from each other. For example, Toritani '903 discloses that

“The average particle diameter of the rubbery copolymer [II] used in the present (Toritani's) invention must be 0.1 to 1 μm , preferably 0.2 to 0.8 μm .”

See, column 6, lines 4-6 of Toritani '903, while the insoluble methyl methacrylate resin particles in the resin layer (B) in the claimed invention have a weight-average particle size of 1.0 to 33 μm . Toritani '903 fails to disclose or suggest that soluble methyl methacrylate resin particles having an average particles size exceeding 1 μm have advantages when used in a laminated extruded resin sheet. On the contrary, Toritani '903 discloses that

“Where a rubbery copolymer having an average particle diameter exceeding 1 μm is used, when the obtained cast plate is drawn, the surface gloss almost disappears”

See, column 6, lines 10-13 of Toritani '903, which teaches away from the use of a rubbery copolymer having an average particle diameter exceeding 1 μm .

Therefore, in view of at least a weight-average particle size of insoluble methyl methacrylate resin particles in the resin layer (B) and the advantages provided by the particles in a laminated extruded resin sheet, the claimed invention is not anticipated by nor would it have been obvious over the Toritani '903 reference.

Koizumi '739 discloses

a methacrylate resin composition comprising:

- (A) 5 to 50% by weight of a crosslinked acrylate elastomer comprising (a-1) 20 to 90% by weight of a crosslinked polymer component having a glass transition temperature of -30 to 10°C and comprising a monomer mixture containing 50 to 80% by weight of an alkyl acrylate and 50 to 20% by

weight of an alkyl methacrylate and 0.1 to 20 parts by weight, per 100 parts by weight of said monomer mixture, of a polyfunctional monomer having at least two non-conjugated double bonds per molecule and copolymerizable with said monomer mixture, and (a-2) 80 to 20% by weight of a crosslinked polymer component having a glass transition temperature of less than -30°C and comprising a monomer containing 80 to 100% by weight of an alkyl acrylate and 20 to 0% by weight of an alkyl methacrylate and 0.1 to 20 parts by weight, per 100 parts by weight of said monomer, of a polyfunctional monomer having at least two non-conjugated double bonds per molecule and copolymerizable with said monomer, wherein said crosslinked acrylate elastomer (A) has a two layer structure comprising said component (a-1) located on the inner side and said component (a-2) located on the outer side, or a two layer structure comprising said component (a-2) located on the inner side and said component (a-1) located on the outer side, and

- (B) 95 to 50% by weight of an alkyl methacrylate polymer prepared by polymerizing and acrylic monomer containing 80 to 100% by weight of an alkyl methacrylate and 20 to 0% by weight of an alkyl acrylate in the presence of 0.01 to 10 parts by weight of a chain transfer agent per 100 parts by weight of said acrylic monomer."

See, column 2, lines 63, to column 3, line 27 of Koizumi '739. That is, in Koizumi '739, the two-layer-structure elastomer comprises

- (a-1) 20 to 80% by weight of a crosslinked polymer component, and
- (a-2) 80 to 20% by weight of a crosslinked polymer component.

And component (a-1) comprises a monomer mixture containing

- 50 to 80% by weight of an alkyl acrylate,
- 50 to 20% by weight of an alkyl methacrylate, and

0.1 to 20 parts by weight, per 100 parts by weight of the monomer mixture, of a polyfunctional monomer, while component (a-2) comprises a monomer containing 80 to 100% by weight of an alkyl acrylate, 20 to 0% by weight of an alkyl methacrylate, and 0.1 to 20 parts by weight, per 100 parts by weight of the monomer, of a polyfunctional monomer.

Therefore, the two-layer-structure elastomer in Koizumi '739 comprises at most 44 % by weight of an alkyl methacrylate (which is able to be obtained when the elastomer contains (a-1) 80% by weight of a crosslinked polymer component and (a-2) 20% by weight of a crosslinked polymer component, and component (a-1) comprises a monomer mixture containing 50% by weight of an alkyl methacrylate, and component (a-2) comprises a monomer containing 20% by weight of an alkyl methacrylate). In Koizumi '739, there is no disclosure or suggestion in that the two-layer-structure elastomer comprises more than 44 % by weight of an alkyl methacrylate.

On the other hand, the insoluble methyl methacrylate resin particles recited in the instantly amended claims comprise about 50 % by weight of more of methyl methacrylate and are different from the two-layer-structure elastomer in Koizumi '739 at least in view of such an amount (concentration) of methyl methacrylate contained therein.

Therefore, the claimed invention is not anticipated by nor would it have been obvious over Koizumi '739.

Tadokoro '298 discloses an acrylic resin laminated film, wherein two layers comprising an acrylic resin containing no impact-resistant material are separately laminated on two surfaces of the layer comprising an acrylic resin composition containing an acrylic resin and acrylic rubber particles (see, claim 2 in Tadokoro '298). In this acrylic resin laminated film, the layer comprising an acrylic resin composition containing an acrylic resin and acrylic rubber particles is sandwiched between two layers comprising an acrylic resin containing no impact-resistant material. However, Tadokoro '298 does not disclose a laminated film in which two layers containing acrylic rubber particles hold an acrylic resin layer therebetween, while in a claimed

laminated extruded resin sheet, the resin layers (B) containing insoluble methyl methacrylate resin particles are laminated on both surfaces of the resin layer (A).

Such a structure provided by the claimed invention that resin layers containing insoluble methyl methacrylate resin particles are placed on both surfaces of a resin layer is not anticipated by or is not obvious over Tadokoro '298.

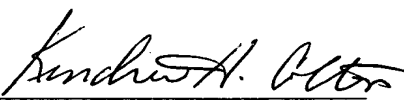
Summary

As mentioned above, a methacrylic resin cast plate disclosed in Toritani '903 is different from the laminated extruded resin sheet of the claimed invention; a sheet which might be obtained from a methacrylate resin composition of Koizumi '739 is different from the laminated extruded resin sheet of the claimed invention, even if a hypothetical laminate of multiple layers with identical composition of Toritani '903 or of Koizumi '739 were compared with the claimed laminated extruded resin sheet. Further, even if Tadokoro '298 were combined with Toritani '903 and/or Koizumi '739, the combinations would not have described or suggested resin layers (B) containing insoluble methyl methacrylate resin particles laminated on both surfaces of a resin layer (A).

Please allow this application.

Respectfully submitted,

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Amendments to the existing claims:

Claim 1. (Previously Amended): A laminated extruded resin sheet comprising a methyl methacrylate resin produced by laminating resin layers (B) on both surfaces of a resin layer (A) by a multilayer-extrusion molding method, the resin layer (A) comprising a methyl methacrylate resin, and the resin layer (B) being made by dispersing uniformly 1 to 50 parts by weight of insoluble methyl methacrylate resin particles having a weight-average particle size of 1.0 to 33 μm based on 100 parts by weight of a base resin comprising a methyl methacrylate resin, said insoluble methyl methacrylate resin particles comprising 50% or more by weight of methyl methacrylate.

Claim 18. (Previously Amended): A laminated extruded resin sheet comprising a methyl methacrylate resin produced by laminating resin layers (B) on both surfaces of a resin layer (A) by a multilayer-extrusion molding method, the resin layer (A) comprising a methyl methacrylate resin, and the resin layer (B) being made by dispersing uniformly 1 to 50 parts by weight insoluble methyl methacrylate resin particles having a weight-average particle size of 1.0 to 33 μm based on 100 parts by weight of a base resin comprising a methyl methacrylate resin, wherein a layer thickness ratio of resin layer (B)/resin layer (A)/resin layer (B) is from 1/200/1 to 1/1/1, and wherein the base resin comprises 100 parts by weight of a methyl methacrylate resin and 5 to 70 parts by weight of a rubber-containing polymer, said insoluble methyl methacrylate resin particles comprising 50% or more by weight of methyl methacrylate.

Claim 24 (New): The laminated extruded resin sheet according to claim 1, wherein the resin layer (A) has no insoluble methyl metharylate particles.

Claim 25 (New): The laminated extruded resin sheet according to claim 18, wherein the resin layer (A) has no insoluble methyl metharylate particles.